MATHEMATICS (60 Questions)+ COMP 60Q = 120QUESTIONS

Q.no	**QUESTION**
1	$\sim(p \vee q) \vee (\sim p \wedge q)$ is logically equivalent to (A) $\sim p$ (B)p C)q D) $\sim q$
2	The contrapositive of the statement “if x is lucky then x is wealthy” is A) if x is wealthy then x is lucky B) if x is not lucky then x is not wealthy C) if x is not wealthy then x is not lucky D) if x is not lucky then x is wealthy
3	If $p \to (q \vee r)$ is false ,then the truth values of p,q,r are respectively A)T,T,T B)T,F,FC)F,F,FD)F,T,T
4	In a class of 100 students the following is the qualifying result of the examinations in three subjects Economics (E), Commerce (C) and Statistics(S). 10 students qualified in all the three subjects.20 qualified in E & C;30 qualified in C & S;25 in E& S.12 only in E;5 only in C ;8 only in S. The number of students not qualified in all the three subjects is A)20 B)3 C)36 D)42
5	On set of real numbers R, for $x, y \in R$ define a relation T by x T y if and only if $x - y + \sqrt{2}$ is an irrational number,then T is A)Equivalence B)Symmetric C)Transitive D)reflexive
6	If $A = \{8^n - 7n - 1 / n \in N\}, B = \{49(n-1) / n \in N\}$ then A) $A \subset B$ B) $B \subset A$ C) $A = B$ D) information not sufficient

7	If $f:[-3,2]\to\left[0,\sqrt[3]{n}\right]$ is onto defined by $f(x)=\left\{\begin{array}{l}2+\sqrt[3]{x},\ -3\le x\le -1\\ x^{2/3}, -1\le x\le 2\end{array}\right\}$, then n= A)1 B)2 C)4 D)6
8	If two functions f and g are defined on sets such that fog exist. The necessary condition that fog is on to is A) f is on to B) g is on to C) both f and g are on to D) none of f and g is onto
9	The domain of f(x)= $\sqrt{\log_{10}[(5x-x^2)/4]}$ is A) [0, 1] B) [1, 4] C) [-1, 2] D)set of all real numbers
10	The sum of two numbers is 25 and the geometric mean is 52% lower than twice their average. Find the numbers (A)17, 8 (B)10, 15 (C) 16, 9 (D) 12, 13
11	A batsman scores 120 runs in the 25th inning and thus increases his average by 4.What is his average after the 25th inning? (A)24 (B)16 (C) 20 (D) 12
12	z is a complex number. The locus of the point z satisfying the equation $\left\|z-z_1\right\|+\left\|z-z_2\right\|=\lambda$ where $\lambda>\left\|z_1-z_2\right\|$ is A) ellipse B) circle C) Hyperbola D) straight line
13	If $1,\omega,\omega^2$ are the cube roots of unity , then the roots of $(x-1)^3+8=0$ A) $1,1+2\omega,1+2\omega^2$ B) $-1,1-2\omega,1-2\omega^2$ C) $-2,2-\omega,2-\omega^2$ D) $2,2\omega,2\omega^2$
14	The value of $\sqrt{15+8i}+\sqrt{15-8i}$ is equal to A)15 B) 8 C) 23 D) 7

15	If there are 2 kinds of balls red and black and at least 4 of each kind, the number of ways a ball can be put in each of 4 different boxes is A) 1 B)8 C)6 D)16
16	In an examination, a candidate has to pass in each of the 6 subjects, the number of ways that he can fail is A) 21 B)81 C)63 D)16
17	If the ratio of the 7th term from the beginning to the 7th term from the end in the expansion of $\left(\sqrt[3]{2}+\frac{1}{\sqrt[3]{3}}\right)^{x}$ is $\frac{1}{6}$, then x is A)9 B)6 C)12 D) 11
18	If $c_0, c_1, c_2, c_3, c_4......c_n$ are the binomial coefficients then $5c_1+8c_2+11c_3......+(3n+2)c_n=$ A) $(3n+7)2^{n-1}$ B) $(3n+4)2^{n-1}-2$ C) $\frac{(3n+2)}{2}2^{n}-2$ D) $3n.2^{n}$
19	The number of irrational terms in the expansion of $\left(\sqrt[3]{4}+\sqrt{5}\right)^{21}$ is A) 15 B) 22 (C) 18 D) 4
20	The inverse of $\begin{bmatrix}0&1&0\\1&0&0\\0&0&1\end{bmatrix}$ = A) $\begin{bmatrix}0&1&0\\1&0&0\\0&0&1\end{bmatrix}$ B) $\begin{bmatrix}0&0&1\\1&0&0\\0&1&0\end{bmatrix}$ C) $\begin{bmatrix}0&0&1\\1&0&1\\0&1&0\end{bmatrix}$ D) $\begin{bmatrix}1&0&1\\1&0&1\\0&1&0\end{bmatrix}$
21	If $A=\left(a_{ij}\right)_{3\times 3}$ such that $a_{ij}=(i+j)^{2}$, then cofactor of the element a_{23} = A)1100 (B) 44 (C) 25 (D)33

22	If $\begin{bmatrix} x^2+2x+1 & x-7 & 2x^2 \\ x+6 & x^2+7x & 4 \\ 2+x & x & 8x-3 \end{bmatrix} = Ax^2+Bx+C$, then determinant of A+C= A) 192 B)0 (C) -192 D) 218
23	$\cos 225^0 + \sin 165^0$ = A) 2 B) 0 C) 1 D) $\sqrt{\frac{3}{2}}$
24	In a triangle ABC, 3cosA+2=0, then the quadratic equation whose roots are sinA and tanA is A) $6x^2-\sqrt{5}x-5=0$ B) $6x^2+\sqrt{5}x+5=0$ C) $6x^2-\sqrt{5}x+5=0$ D) $6x^2+\sqrt{5}x-5=0$
25	In a triangle ABC, the lengths of the sides BC, CA and AB are respectively p, q and r. If(p+q+r)(q+r-p)=k p r, then k belongs to A) $(-\infty,0)$ B) $(0,4)$ C) $(4,\infty)$ D) $(-\infty,\infty)$
26	A straight line L with negative slope passes through the point $(4,9)$ and cuts the positive coordinate axes at the points A and B .As the line varies the minimum value of OA+OB is (O is origin) A)10 (B) 13 C)36 D) 25
27	If one of the lines of $my^2+(1-m^2)xy-mx^2=0$ is a bisector of the angle between the lines xy=o, then m is A)-1/2 B)-2 C)1 D)2
28	Two circles touch each other externally with radii 4 and 9 respectively .The area of the quadrilateral formed by the centres and the points of contact of a direct common tangent is A)124 B)78 C)30 D)136
29	Tangents are drawn to the circle C: $x^2+y^2=1$ from any arbitrary point P on the circle $C_1: x^2+y^2-4=0$ .These tangents meet the circle C_1 again at A and B. Tangents are drawn to the circle C_1 at these points A and B. The locus of point of intersection of these tangents is A) $x^2+y^2=10$ B) $x^2+y^2=16$ C) $x^2+y^2=25$ D) $x^2+y^2=9$

30	The normal at the point $(bt_1^2, 2bt_1)$ on a parabola meets the parabola again in the point $(bt_2^2, 2bt_2)$,then A) $t_2 = -t_1 + \frac{2}{t_1}$ B) $t_2 = t_1 - \frac{2}{t_1}$ C) $t_2 = t_1 + \frac{2}{t_1}$ D) $t_2 = -t_1 - \frac{2}{t_1}$
31	The value of k if (1,2) and (k,-1) are conjugate points with respect to the ellipse $2x^2 + 3y^2 = 6$ is A)2 B)4 C)6 D)8
32	The combined equation of the asymptotes of the Hyperbola $xy + x + y + 5 = 0$ is A) xy=0 B)(x-1)(y-1)=0 C) (x-1)(y+1)=0 D) (x+1)(y+1)=0
33	If (K,1,5);(1,0,3);(7,-2,L) are collinear then (K,L)= A)(-2,-1) B)(2,1) C)(-2,1) D)(2,-1)
34	The plane 2x+2y-z=k touches the sphere $x^2 + y^2 + z^2 - 4x + 2y - 6z + 5 = 0$ and makes a positive intercept on the z-axis then k= A) -10 B)-8 C) 8 D)10
35	The plane 2x-2y-3z-14=0 and the line joining the points (1,2,4), (3,3,0) intersect at A)(5,2,0) B)(-3,-1,-6) C)(5,4,-4) D)(10,-15,12)
36	ABC is a triangle and AD, BE, CF are its medians then $\vec{AD} + \vec{BE} + \vec{CF} =$ A) 4 $\vec{AB}$ B) 3 $\vec{BC}$ C) 4 $\vec{CA}$ D) $\vec{O}$
37	If $\bar{a}, \bar{b}$ & $\bar{c}$ are non coplanar unit vectors such that $\bar{a} \times (\bar{b} \times \bar{c}) = \frac{\bar{b} + \bar{c}}{\sqrt{2}}$,then the angle between $\bar{a}$ & $\bar{b}$ is A) $3\pi/4$ B) $\pi/4$ C) $\pi/2$ D) π

38	A particle acted on by a constant forces $4\overline{i}+\overline{j}-3\overline{k}$ and $3\overline{i}+\overline{j}-\overline{k}$ is displaced from the point $\overline{i}+2\overline{j}+3\overline{k}$ to the point $5\overline{i}+4\overline{j}+\overline{k}$ .The total work done by the forces is A)20 units B)40 units C)30units D)50 units
39	If α is a repeated root of $ax^2+bx+c=0$ then $\lim_{x\to\alpha}\frac{Sin(ax^2+bx+c)}{(x-\alpha)^2}$ A)0 B)a C)b D)c

40	If $x=f(t)$ and y=g(t) then $\frac{d^2y}{dx^2}$ =
	A) $\frac{g^{//}(t)}{f^{//}(t)}$ B) $\frac{f^{//}(t)}{g^{//}(t)}$ C) $\frac{f^{/}(t)g^{//}(t)-f^{//}(t)g^{/}(t)}{\left(f^{/}(t)\right)^3}$ D) $\frac{g^{/}(t)f^{//}(t)-g^{//}(t)f^{/}(t)}{\left(g^{/}(t)\right)^3}$
	$(\ )^{/}$ & $(\ )^{//}$ represent first & second derivatives

41	If $y=x^n\ Log_e x$,then $x\ y_{n+1}$ = A)n B) $\log_e x^n$ C) $n!$ D)0
42	If $u=\text{Tan}^{-1}\left(\frac{x+y}{\sqrt{x}+\sqrt{y}}\right)$,then $x\frac{\partial u}{\partial x}+y\frac{\partial u}{\partial x}$ = A) $\frac{1}{2}\text{Sec}^2 u$ B) $\frac{1}{2}\frac{\sec u}{1+\text{Tan}^2 u}$ C) $\frac{1}{2}\frac{\text{Tan}\,u}{1-\text{Tan}^2 u}$ D) $\frac{1}{2}\frac{\text{Tan}\,u}{1+\text{Tan}^2 u}$
43	If $a^2x^4+b^2y^4=c^6$, the the maximum value of xy is A) $\frac{c^3}{2ab}$ B) $\frac{c^3}{\sqrt{2ab}}$ C) $\frac{c^3}{ab}$ D) $\frac{c^3}{\sqrt{ab}}$
44	The sum of the ordinates of the points on the curve $6y=4x^3+3x^2$ at which the tangents make equal angles with the Coordinate axes is A)3/8 B)0 C)1/24 D)13
45	A lamp of negligible height is placed at a distance of x meters from a wall. A man of height y meters is walking towards the wall at a speed of (x/10) meters per second. The rate of change of the shadow of the man on the wall when man is midway between wall and the lamp is (in meters per second) A) $\frac{-2y}{5}$ B) $-\frac{y}{5}$ C) $\frac{4y}{5}$ D) $-\frac{y}{10}$

46	A curve represented $x=t^5-5t^3-20t+7, y=4t^3-3t^2-18t+3$ is increasing in an interval of finite length is A)(-2,2) B)(-1,3/2) C)(3/2,2) D)(-1,2)
47	$\int \cos(\ln x)dx =$ A) $\frac{x}{2}[\cos\ln x+\sin\ln x]+c$ B) $\frac{x}{2}[\cos\ln x-\sin\ln x]+c$ C) $x[\cos\ln x+\sin\ln x]+c$ D) $x^2[\cos\ln x+\sin\ln x]+c$
48	A function $y=f(x)$ has a second order derivative $f^{//}(x)=6(x-1)$ .If its graph passes through the point (2,1) and at that point the tangent to the graph is $y=3x-5$,then the function is A) $(x-1)^2$ B) $(x+1)^2+2$ C) $(x-1)^3+3$ D) $(x-1)^3$
49	In the binomial expansion $\left(x^2+\frac{1}{x}\right)^6$, m th term contains x^3 and n th term contains x^{-3} . The value of the integral $\int_0^{2\pi} \text{Sin}^m\theta\,\text{Cos}^n\theta d\theta$ = A) $\frac{\pi}{32}$ B) $\frac{3\pi}{32}$ C) $\frac{3\pi}{132}$ D)0
50	In [a, b] a function f(x) <0, then the area bounded by the curve, x-axis, the lines x=a and x=b is A) $\int_a^b f(x)dx$ B) $\int_b^a f(x)dx$ C) $\int_a^b f(-x)dx$ D) $-\int_b^a f(x)dx$
51	The order and degree of the differential equation $5^{3Log_5\frac{dy}{dx}}=5+3^{5Log_3\frac{d^2y}{dx^2}}$ are A)Order is 2& degree can not be determined B)Order is 2 & degree is 2 C)Order is 2, degree is 5 D) Order is 1 degree is 3
52	$y=ax+b$ is A) General solution for $\frac{d^3y}{dx^3}=0$ & particular solution for $\frac{d^2y}{dx^2}=0$

	B) particular solution for $\frac{d^3y}{dx^3}=0$ & for $\frac{d^2y}{dx^2}=0$ C) General solution for $\frac{d^2y}{dx^2}=0$ & for $\frac{d^3y}{dx^3}=0$ D) General solution for $\frac{d^2y}{dx^2}=0$ & particular solution for $\frac{d^3y}{dx^3}=0$
53	The differential equations $\frac{dy}{dx}=\frac{xLogx}{y^3e^{y^2-5}}$ and $\frac{dy}{dx}+\frac{y^3e^{y^2-5}}{xLogx}=0$ represent two families of curves which A)Touch each other B) intersects at an angle of 45^0 C) do not meet each other D) are orthogonal.
54	The solution of $\frac{d^2y}{dx^2}=12x^2+\log x+2$,such that y(1)=0,and $y'(1)=0$ is y= A) $x^4+\frac{1}{2}x^2Log_e x+\frac{x^2}{4}-5x+\frac{15}{4}$ B) $x^4+\frac{1}{2}x^2Log_e x+\frac{x^2}{4}-\frac{5}{4}$ A) $x^4+\frac{1}{2}x^2Log_e x+\frac{x^2}{4}-\frac{5}{4}$ D) $x^4+Log_e x+\frac{x^2}{4}-\frac{5}{4}$
55	If $\sum_{i=1}^{18}(x_i-8)=9$ and $\sum_{i=1}^{18}(x_i-8)^2=45$,then the standard deviation of the observations $x_i(i=1,2,3....18)$ is A) 4/9 B)9/4 C)3/2 D)2/3
56	Consider the data 1,2,m,7,15,10,8,35,76,9,27 and the below statements. 1) m is median , when m is any value in between 9 and 10 2) 9 is median, when m is any value less than 9 3) 10 is median , when m is any value more than 10 The true statements from the above are A) Only (1) & (2) B) only (2) &(3) C) only (3) and (1) D) all (1) ,(2) &(3)
57	Probability that the selection is to consist of either all males or all females from the selections of 10 clerks from 22 males and 17 female applicants is A) $\frac{^{22}C_{10}}{^{39}C_{10}}$ B) $\frac{^{22}C_{10}\times{}^{17}C_{10}}{^{39}C_{10}}$ C) $\frac{^{22}C_{10}+{}^{17}C_{10}}{^{39}C_{10}}$ D) $\frac{^{17}C_{3}}{^{39}C_{10}}$
58	The probability that the year 2100 having 53 Sundays is A)1 B) 1/7 C) 2/7 D) 6/7

59	The hexadecimal number(2AF3)is equal to the to decimal number A) 10095 B)19995 C) 10005 D)10995
60	The equivalent octal number for the hexadecimal number 25B is A)1113 (B) 1333 (C)1133 D) 1033

61. What is the value of the C expression "4&8|12"?

(A) 12 (B) 124 (C) 24 (D) 16

62. What is the value of the C expression “~4&~8|~12” assuming 8-bit number representation?

(A) 255 (B) 243 (C) 244 (D) 242

63. For the following code fragment, find the number of times the statement at label L1 will get executed.

```
for ( i = 0; i < 100; i++)
{     i++;
      L1: ...
}
```

(A) 100 (B) 99 (C) 50 (D) 49

64. The canonical sum-of-product expression corresponding to the Boolean function f(A,B) = 1 is

(A) AB + A'B + AB' + A'B' (B) 1 (C) 0 (D) A + A' + B + B'

65. The difference between the number of 1's and number of 0's in the K-Map for the function f(a, b, c) = a + b'c is

(A) 0 (B) 1 (C) 2 (D) 3

66. An SR-latch is created using only two NAND gates with S and R inputs feeding one NAND gate each. If both S and R inputs are set to zero, the outputs will be

(A) Q and Q' both 1
(B) Indeterminate
(C) Both at 0
(D) Q and Q' complementary to each other

67. An instruction performing an arithmetic operation will be fastest if the operands are available in

(A) Cache (B) CPU register
(C) ALU (D) Main memory

68. The signal lines between CPU and memory can be classified as

(A) Address, Data (B) Address, Read, Write
(C) Address, Data, Control (D) Address, Data, Read

69. MAC address is associated with which layer in OSI model?

(A) Physical (B) Datalink (C) Network (D) Transport

70. In OSI model IP protocol runs at which layer?
(A) Physical (B) Datalink (C) Network (D) Transport

71. FTP stands for
(A) File Transfer Protocol (B) Format Transfer Protocol
(C) Fast Transfer Protocol (D) Finite Transfer Protocol

72. IN TCP/IP, IP stands for
(A) Inject Protocol (B) Interleaved Protocol
(C) Insensitive Protocol (D) Internet Protocol

73. Which of the following requires a battery backup?
(A) SRAM (B) DRAM (C) DDR RAM (D) All of them

74. Which of the following is a valid base 6 number?
(A) 2047 (B) 565 (C) Both A and B (D) None of A or B

75. Value of the expression $(25)_{12}$ + $(46)_{7}$ in base 6 number system is
(A) 143 (B) 341 (C) 124 (D) 421

76. Assuming that '/'is a left associate integer division operator and '\' a right associative integer division operation, evaluate the expression "2/3/4 + 4\3\2".
(A) 0 (B) 4 (C) 3 (D) 1

77. What will be the output of the following code fragment

```
int a = 3, b = 2;
 if (a / b > a % b)
      printf("Yes"); else printf("No");
```

(A) Yes (B) No (C) Syntax error (D) None of these

78. If p is an integer pointer, 2*p will have a value
(A) Twice the current value of p
(B) Indeterminate
(C) Syntax error
(D) None of these

79. In a 'switch' statement
(A) 'default' is optional
(B) 'default' is mandatory

(C) ‘default’ is always executed
(D) 'default' is executed only when it is the last case option

80. In a C program, any for-loop can be converted into an equivalent
(A) while loop (B) do-while loop
(C) Both A and B (D) None of these

81. The #define directive is a
(A) Macro (B) Constant (C) Procedure (D) None of these

82. Time complexity to sort an array of 100 numbers using Quicksort is
(A) O(100) (B) O(10) (C) O(log 100) (D) O(1)

83. Data structure used to evaluate a postfix expression is a
(A) Queue (B) Stack (C) Tree (D) Heap

84. In an array with n elements, the complexity to delete ith element
(A) O(1) (B) O(n) (C) O(log n) (D) O(n^2)

85. Number of pointers needed in a stack and a queue are
(A) 1, 2 (B) 1, 1 (C) 2, 2 (D) 2, 1

86. In a binary tree each node can have
(A) exactly two children
(B) at most two children
(C) more than two children
(D) None of these

87. The minimum possible number of levels in an n-element binary tree can be
(A) n (B) 1 (C) 2n (D) log n

88. The best case complexity of Bubblesort is
(A) O(n) (B) O($n$log$n$) (C) O(n^2) (d) O($n^2 logn$)

89. In a sequential search algorithm, in terms of O-notation, best case occurs when the element is
(A) the first one in the array
(B) the last one in the array
(C) within first 10 elements in the array
(D) both A and C

90. For the following code fragment, the time complexity is given by,

```
For(i = 0, j=0; i < n && j < n; i = 2*i, j++)
```

(A) O(n) (B) O(log n) (C) O(n log n) (D) O(1)

91. In C++ polymorphism means

(A) function called depends upon the object invoking it
(B) all the functions with same name getting invoked
(C) both A and B
(D) none of these

92. In case of public inheritance, which of the following members of parent class do get inherited

(A) Public, Protected (B) Private, Protected
(C) Public, Private (D) Public, Private, Protected

93. What is the output of the following code fragment?

```
int a = 067;
printf("%d", a+1);
```

(A) 68 (B) 66 (C) 55 (D) 56

94. How many times is the loop-body executed in the following code fragment?

```
int x = 5, y = 10;
do {
      x+= 10;
} while (x < y);
```

(A) 5 (B) 6 (C) 7 (D) 4

95. Final value of 's' in the following code fragment is

```
int s = 0;
for ( i = 0; i < 5; i++) s = s << 1 + i;
```

(A)10 (B)20 (C)26 (D)28

96. What will be the output of the following code fragment?

```
if (5 < 2)
      cout << "I like";
else if ((6 >= 3) || (4 <= 8))
            cout << "computer";
      else cout << "fruits";
```

(A) computer (B) fruits (C) I like computer (D) I like fruits

97. Boolean expression (x < y || x > y) is equivalent to
    (A) y >= x (B) x != y (C) x >= y (D) None of these

98. Resolution of a computer screen corresponds to
    (A) Total number of pixels
    (B) Number of pixel per unit length
    (C) Number of pixels per unit area
    (D) None of these

99. Full form of DDR
    (A) Double Data Rate
    (B) Dual Data Rate
    (C) Double Disk Rate
    (D) Dual Disk Rate

100. SATA stands for
    (A) Serial Advanced Technology Attachment
    (B) Special Asynchronous Technology Addition
    (C) Serial Asynchronous Terminal Adapter
    (D) Special Advanced Terminal Adapter

101. CDMA stands for
    (A) Carrier Detect Multiplexed Access
    (B) Code Division Multiple Access
    (C) Carrier Division Multiple Access
    (D) Carrier Division Multiplexed Access

102. Which of the following is not an input device?
    (A) Scanner (B) Printer (C) Disk (D) Pen drive

103. Command "cp –i" in Unix makes cp command to
    (A) prompt the name of the file overwritten
    (B) prompt the name of the file if not existing
    (C) always prompt the name of the file
    (D) None of these

104. Command to delete all files in a directory and subdirectories within it in UNIX is
    (A) rm –i (B) rm –chk (C) rm –d (D) rm –r

105. Unix command to get status of all processes in the system is
    (A) ps -a (B) ps -x (C) ps -l (D) None of these

106. The command “command1 | command2” in Unix
(A) redirects output of command1 to input of command2
(B) makes input common for command1 and command2
(C) executes both the commands in parallel
(D) None of these

107. In Unix, if the file permission for a user is “001” then the user can
(A) read and write onto the file but cannot execute
(B) not read write onto the file but can execute
(C) not read write or execute the file
(D) None of the above

108. The unix command to reduce priority of a process is
(A) red (B) lower (C) upper (D) nice

109. The memory management system of an operating system manages
(A) Main memory (B) Disk (C) Tape (D) All of these

110. Kernel of an operating system contains
(A) shared data structures (B) shared routines
(C) None of A or B (D) Both A and B

111. If X is larger than Y and X is larger than Z then which of the following statement(s) is/are true?
(A) X is larger than both Y and Z
(B) X is the larger than Y but Y is smaller than Z
(C) Y is smaller than Z
(D) None of A, B, C

112. If X is larger than Y and Y is larger than Z then which of the following statement(s) is/are true?
(A) Z is larger than X
(B) Z is smaller than X
(C) Z is smaller than Y
(D) Both B and C

113. If X is larger than Y and Y is smaller than Z then which of the following statement(s) is/are definitely true?
(A) X is smaller than Z
(B) X is larger than Z
(C) Both A and B
(D) None of these

114. If X is larger than the minimum of Y and Z then which of the following is definitely true about X?

(A) X is larger than both
(B) X is smaller than both
(C) X is between Y and Z
(D) None of A,B,C

115. If X is larger than the maximum of Y and Z then which of the following is definitely true about X?
(A) X is larger than both
(B) X is smaller than both
(C) X is between Y and Z
(D) None of A,B,C

116. If X is smaller than the maximum of Y and Z then which of the following is definitely true about X?
(A) X is larger than both
(B) X is smaller than both
(C) X is between Y and Z
(D) None of A,B,C

117. If X is smaller than the minimum of Y and Z then which of the following is definitely true about X?
(A) X is larger than both
(B) X is smaller than both
(C) X is between Y and Z
(D) None of A,B,C

118. In a Boolean formula, A + B = B + C. Then which of the following statement(s) is/are definitely true?
(A) A = C
(B) B = 1
(C) A = C’
(D) None of these

119. In a Boolean formula, A + B’ = A. Which of the following is/are definitely true?
(A) B = 0
(B) A = 1
(C) A = 0
(D) None of these

120. In a Boolean formula A + A’ = 1. Which of the following is/are definitely true?
(A) A = 1
(B) A = 0
(C) A can assume any value
(D) None of these